

Chairman's Introduction

Steven Dierker

Chairman, National Synchrotron Light Source

In 2005, the NSLS proved itself, once again, to be a center of scientific excellence. This remarkable facility, commissioned in the early 1980s, is still attracting some of the world's best researchers in almost every scientific field, who produce more than seven hundred scientific papers every year using the NSLS.

The "Science Highlights" and "Feature Highlights" sections of this report are just a small sampling of the many, many impressive research projects conducted at the NSLS in 2005. For example, a user group synthesized and studied zinc-oxide nanowires, which have applications in many optical and electrical devices. Another user group studied how strontium and uranium are removed from high-level radioactive waste. And in another interesting study, users deciphered the basis for antibiotic resistance.

However, as always, the success of these projects depends on the performance of the facility. Again this year, the rings were in top form — reliability was 96 percent for the x-ray ring and 99 percent for the VUV-IR ring. Additionally, to keep the NSLS as productive as possible and to continue to attract users, many beamline upgrade projects were completed this year. One of the highlights of these upgrades is the new mini-gap undulator installed at beamline X25. This insertion device is providing a much brighter x-ray source for the program at X25.

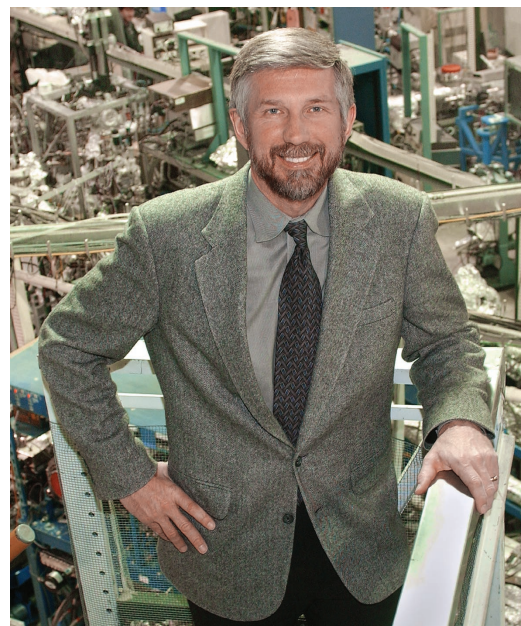
In the always important area of safety, several noteworthy activities took place this year. In particular, NSLS staff made a major commitment to labeling and inspecting electrical equipment. And perhaps the best news is what didn't happen — there were no reportable occurrences related to environmental, safety, or health issues in 2005, and no injuries that resulted in restricted or lost time. We all owe thanks to the dedicated NSLS staff and users who have ensured that the NSLS remains a reliable, safe, up-to-date research facility.

As 2005 came to an end, I stepped down as NSLS Chairman in order to focus my primary efforts on NSLS-II, the world-leading third-generation synchrotron planned for construction at BNL. NSLS-II passed a critical milestone in 2005 with the approval by the Department of Energy of CD-0. BNL has established the NSLS-II Project Organization within the Light Sources Directorate to put in place the management systems and infrastructure necessary to execute this complex undertaking. I will serve as NSLS-II Project Director and also retain my position as Associate Laboratory Director for Light Sources, with the NSLS reporting to me.

Another exciting development is the planned establishment of the Joint Photon Sciences Institute (JPSI). JPSI will be devoted to cultivating and fostering collaborative, interdisciplinary R&D in areas of the physical sciences, engineering, and the life sciences that are united in employing synchrotron-based methods. JPSI will also develop new methods and applications that exploit the unique capabilities of NSLS-II and will serve as a gateway for NSLS-II users.

JPSI will be a partnership between the Department of Energy and New York State, and I am delighted that New York State Governor George Pataki has pledged \$30 million for the construction of the JPSI building.

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The building will be located adjacent to NSLS-II and will contain offices, meeting rooms, and specialized laboratories. The operating expenses of JPSI and funding for its research programs will be provided by the federal government.

Until a permanent NSLS Director is selected, NSLS User Science Division Associate Chair Chi-Chang Kao will serve as the Interim NSLS Director. I couldn't be leaving the facility in more capable hands. Chi-Chang will lead NSLS staff and users this year in the development of a five-year strategic plan for the NSLS, scheduled for completion by the end of summer 2006. The plan will outline the course for the future operation and development of the NSLS, and will help ensure that the future of the NSLS remains as bright as its past.